

1     IN THE CLAIMS:

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3             In the following, Claims 1-4 are amended herein. Claims  
4     5 and 6 have not been amended and are the original claims as  
5     filed in the USPTO.

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7             Please amend the claims as follows:

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9             Claim 1 (Currently Amended). An apparatus comprising  
10    an electrically heated composite umbilical means installed  
11    within a subsea flowline containing produced hydrocarbons as  
12    an immersion heater means to prevent waxes and hydrates from  
13    forming within said flowline and blocking said flowline,  
14    whereby said electrically heated composite umbilical means  
15    possesses at least one electrical conductor disposed within  
16    said composite umbilical means that conducts electrical  
17    current that is used to heat said electrically heated  
18    composite umbilical means within said subsea flowline  
19    , whereby said electrical conductor is surrounded by a  
20    composite material, and whereby said composite material is  
21    comprised of fibers of high strength embedded in a matrix  
22    material, whereby said fibers are selected from carbon  
23    fibers, aramid fibers and glass fibers, and whereby said  
24    matrix material is selected from thermoset resins and  
25    thermoplastic resins, whereby said thermoset resins include  
26    epoxy and vinyl ester, and whereby said thermoplastic resins  
27    include PEEK, PEKK, and nylon.

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30             Claim 2 (Currently Amended). A method of installing an  
31    electrically heated composite umbilical means within a  
32    previously existing subsea flowline containing produced  
33    hydrocarbons to make an immersion heater means to prevent

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1 waxes and hydrates from forming within said flowline and  
2 blocking said flowline , whereby said electrically heated  
3 composite umbilical means possesses at least one electrical  
4 conductor disposed within said composite umbilical means that  
5 conducts electrical current that is used to heat said  
6 electrically heated composite umbilical means, whereby said  
7 electrical conductor is surrounded by a composite material,  
8 and whereby said composite material is comprised of fibers of  
9 high strength embedded in a matrix material, whereby said  
10 fibers include carbon fibers, aramid fibers and glass fibers,  
11 and whereby said matrix material includes thermoset resins  
12 and thermoplastic resins, whereby said thermoset resins  
13 include epoxy and vinyl ester, and whereby said thermoplastic  
14 resins include PEEK, PEKK, and nylon.

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17 Claim 3 (Currently Amended). A method of using an  
18 umbilical conveyance means to convey into an existing subsea  
19 flowline possessing produced hydrocarbons an electrically  
20 heated composite umbilical means used as an immersion heating  
21 means to prevent waxes and hydrates from forming within said  
22 flowline and blocking said flowline , whereby said  
23 electrically heated composite umbilical means possesses at  
24 least one electrical conductor disposed within said composite  
25 umbilical means that conducts electrical current that is used  
26 to heat said electrically heated composite umbilical means,  
27 whereby said electrical conductor is surrounded by a  
28 composite material, and whereby said composite material is  
29 comprised of fibers of high strength embedded in a matrix  
30 material, whereby said fibers include carbon fibers, aramid  
31 fibers and glass fibers, and whereby said matrix material  
32 includes thermoset resins and thermoplastic resins, whereby  
33 said thermoset resins include epoxy and vinyl ester, and

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1 whereby said thermoplastic resins include PEEK, PEKK,  
2 and nylon.

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5 Claim 4 (Currently Amended). A method of using an  
6 umbilical conveyance means to convey into an existing subsea  
7 flowline containing produced hydrocarbons an electrically  
8 heated umbilical means used as an immersion heating means to  
9 prevent waxes and hydrates from forming within said flowline  
10 and blocking said flowline , whereby said electrically  
11 heated composite umbilical means possesses at least one  
12 electrical conductor disposed within said composite umbilical  
13 means that conducts electrical current that is used to heat  
14 said electrically heated composite umbilical means, whereby  
15 said electrical conductor is surrounded by a composite  
16 material, and whereby said composite material is comprised of  
17 fibers of high strength embedded in a matrix material,  
18 whereby said fibers include carbon fibers, aramid fibers and  
19 glass fibers, and whereby said matrix material includes  
20 thermoset resins and thermoplastic resins, whereby said  
21 thermoset resins include epoxy and vinyl ester, and whereby  
22 said thermoplastic resins include PEEK, PEKK, and nylon.

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25 Claim 5. (Original) A method of providing artificial  
26 lift to produced hydrocarbons within a subsea flowline  
27 comprising at least the steps of:

28 (a) attaching a progressing cavity pump to an electric  
29 motor to make an electrically energized pump;

30 (b) attaching said electrically energized pump to  
31 to a first end of a tubular composite umbilical possessing a  
32 multiplicity of electrical conductors within the wall of said  
33 tubular composite umbilical;

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1 (c) conveying into said flowline said electrically  
2 energized pump attached to said first end of said composite  
3 tubular umbilical;

4 (d) using first and second of said multiplicity of  
5 electrical conductors to electrically heat said composite  
6 umbilical to prevent waxes and hydrates from blocking the  
7 flow of said produced hydrocarbons within said flowline; and

8 (e) using at least third and fourth electrical  
9 conductors of said multiplicity of electrical conductors to  
10 provide electrical energy to said electrically energized  
11 pump, whereby said progressing cavity pump provides  
12 artificial lift to said produced hydrocarbons within said  
13 subsea flowline.

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16 Claim 6. (Original) A method of providing artificial  
17 lift to produced hydrocarbons within a subsea flowline  
18 comprising at least the steps of:

19 (a) attaching a hydraulic pump to an electric motor to  
20 make an electrically energized pump;

21 (b) attaching said electrically energized pump to  
22 to a first end of a tubular composite umbilical possessing a  
23 multiplicity of electrical conductors within the wall of said  
24 tubular composite umbilical;

25 (c) conveying into said flowline said electrically  
26 energized pump attached to said first end of said composite  
27 tubular umbilical;

28 (d) using first and second of said multiplicity of  
29 electrical conductors to electrically heat said composite  
30 umbilical to prevent waxes and hydrates from blocking the  
31 flow of said produced hydrocarbons within said flowline; and

32 (e) using at least third and fourth electrical  
33 conductors of said multiplicity of electrical conductors to

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1 provide electrical energy to said electrically energized  
2 pump, whereby said electrically energized pump provides  
3 artificial lift to said produced hydrocarbons within said  
4 subsea flowline.  
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